

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* NICK A. COLLINS  
and MOHSEN H. HARANDI

---

Appeal No. 94-2410  
Application 08/011,573<sup>1</sup>

---

ON BRIEF

---

Before GARRIS, WEIFFENBACH and WALTZ, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1 to 20, which are all the claims in this application.

According to appellants, the invention resides in a process for the disproportionation of C<sub>3</sub>-C<sub>5</sub> paraffins comprising reacting

---

<sup>1</sup> Application for patent filed February 1, 1993.

Appeal No. 94-2410  
Application 08/011,573

the paraffins in a fluidized bed reactor at a pressure less than about 300 psig with a crystalline aluminosilicate zeolite catalyst having an alpha value below about 10 (brief, page 1).

The subject matter on appeal is adequately illustrated by independent claim 1, reproduced below:

1. A process for the disproportionation of a feedstock comprising C<sub>3</sub>-C<sub>5</sub> paraffins comprising reacting the paraffins in a fluidized bed reactor at a pressure less than about 300 psig with a catalyst composition comprising a crystalline aluminosilicate zeolite having an Alpha Value below above 10.

The references relied upon by the examiner are:

Chloupek et al. (Chloupek)	3,953,537	Apr. 27, 1976
Morrison	4,686,316	Aug. 11, 1987
Harandi	5,171,912	Dec. 15, 1992

Claims 1 to 20 stand rejected under 35 U.S.C. § 103 as unpatentable over "any of the US patents 5,171,912 (Harandi), 4,686,316 (Morrison) and 3,953,537 (Chloupek et al)" (answer, page 3). We reverse the stated rejection.

#### OPINION

The process of appealed claim 1 calls for the disproportionation of a feedstock comprising propane, butane and pentane paraffins using what appellants argue are three critical parameters: (1) a fluidized bed reactor; (2) a pressure less than about 300 psig; and (3) with a catalyst comprising a

crystalline aluminosilicate zeolite having an alpha value below about 10 (brief, pages 2-6).

Chloupek discloses a process for disproportionating paraffinic hydrocarbons with an acidic, crystalline aluminosilicate catalyst (abstract). The catalyst is described as "highly acidic" (column 1, lines 10-11, and column 2, lines 5-6), but the alpha value is never mentioned.

Morrison discloses a process for disproportionating propane by contact with a catalyst comprising a crystalline zeolite having a silica-to-alumina ratio of at least 12, a Constraint Index of 1 to 12 (column 1, lines 47-53), and a high acid activity as measured by a high alpha value (see the "alpha test" at column 6, lines 11-21). No specific alpha values are disclosed by the Morrison reference.

Harandi, which incorporates Morrison by reference (see column 1, lines 66-67), discloses two disproportionation reactions, one for propane and one for butane. Both reactions use medium pore zeolite catalysts (column 3, lines 27-36) with the same silica-to-alumina and Constraint Index limitations as taught by Morrison. There is no disclosure of alpha values.

It is well settled that the examiner bears the initial burden of presenting a *prima facie* case of obviousness based on

the disclosures of the applied prior art references. *See In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993); *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The examiner admits that none of the references characterizes the zeolite catalysts in terms of their alpha values (answer, page 6). However, the examiner states that appellants are employing "art-known zeolites prepared by art-known methods" (answer, page 6), citing appellants' disclosure that the particular zeolites used in the appealed claims are prepared by conventional methods and are described in U.S. Patents 3,308,069 and 3,702,886<sup>2</sup> (answer, page 6, and the specification, page 7).

There is no disclosure or teaching in the applied references to suggest using a zeolite catalyst having an alpha value less than 10 in the claimed disproportionation reaction. In fact, looking at the prior art as a whole, the art teaches away from using such low alpha value catalysts for disproportionation. Morrison teaches the use of "high acid activity" and thus high alpha values but, as argued by the examiner, does not disclose

---

<sup>2</sup> It is noted that Argauer et al., U.S. Patent 3,702,886, only discloses one alpha value catalyst, that being a ZSM-5 catalyst having an alpha value of 680 (see Table 12 in column 12).

what "high" values are.<sup>3</sup> Chloupek desires "highly acidic" catalysts and, as shown by Morrison, this type of catalyst has high alpha values. Finally, Harandi does not disclose alpha values but incorporates-by reference Morrison (column 1, line 66-column 2, line 2). Therefore, the comments about Morrison apply also to Harandi.

Accordingly, we agree with the examiner that low alpha value zeolite catalysts are known<sup>4</sup> but we find no reason or suggestion, other than from appellants' specification, to use these catalysts in the disproportionation reactions of Chloupek, Morrison, or Harandi. Where the legal conclusion of obviousness is not supported by facts, it cannot stand. See *In re Warner*, 379 F.2d 1011, 1016-17, 154 USPQ 173, 177-78 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). For the foregoing reasons, we find that the examiner has not presented a sufficient factual basis to meet

---

<sup>3</sup> Sorensen et al. (Sorensen), U.S. Patent 4,754,100, of record in this application, is a continuation-in-part of Morrison and has a similar disclosure. However, Sorensen has the additional disclosure that "high" alpha values are desired and these are "typically about 100 to 500" (column 5, lines 44-55). Furthermore, Sorensen discloses a specific embodiment of a HZSM-5 catalyst with an alpha value of 194 (Example 1, column 8, lines 63-65).

<sup>4</sup> See Miale et al., *Journal of Catalysis* 6, 278-287 (1966), and Olson et al., *Journal of Catalysis* 61, 390-396 (1980), both cited by appellants on page 7 of the specification.

Appeal No. 94-2410  
Application 08/011,573

the initial burden of establishing a *prima facie* case of obviousness. Therefore, the rejection of claims 1 to 20 under 35 U.S.C. § 103 as unpatentable over Chloupek, Morrison or Harandi is reversed.

*REVERSED*

BRADLEY R. GARRIS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
CAMERON WEIFFENBACH	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS
	)	AND
	)	INTERFERENCES
	)	
THOMAS WALTZ	)	
Administrative Patent Judge	)	
	)	

Appeal No. 94-2410  
Application 08/011,573

ALEXANDER J. McKILLOP  
MOBIL OIL CORPORATION  
OFFICE OF PATENT COUNSEL  
3225 GALLOWS RD.  
FAIRFAX, VA 22037